We claim:

1. A gas-phase fluidized-bed reactor for polymerizing ethylenically unsaturated monomers, comprising a reactor space (1) in the form of a vertical tube, a calming zone (2) adjoining the upper part of the reactor space, a circulated gas line (3), a circulated gas compressor (4), a cooling apparatus (5), a gas distributor plate (6) which forms the lower boundary of the reactor space and, if desired, a flow divider (7), wherein the gas distributor plate (6) has a plurality of gas flow orifices (8) whose outlet sides are widened conically.

2. A gas-phase fluidized-bed reactor as claimed in claim 1, wherein the conical widening of the gas flow orifices has an angle α of from 20 to 40°.

3. A gas-phase fluidized-bed reactor as claimed in claim 1 or 2, wherein the remaining planar part of the upper side of the gas distributor plate is less than 10% of the total area of the gas distributor plate.

4. A gas-phase fluidized-bed reactor as claimed in any of claims 1 to 3, wherein the gas flow orifices of the gas distributor plate are configured such that the pressure drop on flowing through the bottom plate is at least 30% of the pressure drop experienced by the gas mixture on flowing through the fluidized bed.

5. A gas-phase fluidized-bed reactor as claimed in any of claims 1 to 4, wherein the diameter of the gas flow orifices is from 2 to 5 mm at their narrowest point.

6. A gas-phase fluidized-bed reactor as claimed in any of claims 1 to 5, wherein a flow divider (7) is installed below the gas distributor plate.

7. A gas distributor plate (6) as set forth in any of claims 1 to 5.

8. A process for polymerizing ethylene or for copolymerizing ethylene with C_3-C_8-α-olefins at from 30 to 125°C and a pressure of from 10 to 90 bar, wherein the process is carried out in a gas-phase fluidized-bed reactor as claimed in any of claims 1 to 6.

9. A process as claimed in claim 8, wherein the polymerization is carried out in the presence of condensed monomers.